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EXAMINER
HAN, QI

ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-11 and 28-37_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-11 and 28-37_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Response to Amendment

1.   This communication is responsive to the applicant's amendment dated 12/13/2003.

Applicant made amendment, amending claims 1-11, canceling claims 12-27, and adding claims

28-37, after first office action of restriction requirement dated 12/12/2003.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claims 1-2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Robertson (USPN 6,463,274) in view of Bender et al. (USPN 6,002,933) hereinafter referenced

as Bender.

Regarding **claim 1**, Robertson discloses multiple class of service determination for digital

cellular telephones, with a variable rate vocoder (abstract) and operated in a cellular telephone

system (equivalent to a network) (column 2, line 31). Robertson further discloses that his

invention "operates on a multi rate vocoding system as shown in FIG. 1; the phone 100 includes

a cellular transceiver 102 that communicates with a remote base station 99; one of the

information items that is received is a rate command 110" (column 1, lines 43-47). Furthermore,

Robertson discloses that a multi rate vocoder 104 (Fig. 1) receives the rate command (herein from network) and selects a quality of service accordingly (column 1, lines 48-50), and the possible bit rate associating quality rate is base on a specified service rate that each customer pays (column 1, lines 51-67). Moreover, Robertson discloses selection of "one time increase" 128, menu-activating keys 124 and 126, and telephone-controlling processor 108 (column 2, lines 13-28), which suggests that these components inherently send signal or data as external parameter to vocoder for further processing. This corresponds to the claimed "a flexible variable rate vocoder for use in a network to process signals, the vocoder having a plurality of output rates, the vocoder comprising: a rate determination module configured to select a target average data rate based on at least one network parameter and at least one external parameter; and a rate implementation module configured to select between the plurality of output rates for coding each of outgoing frames of the signals to achieve an average output rate for the outgoing frames", wherein the network parameter is interpreted as one of special external parameters for indicating network related status hereinafter, since both network parameter and outside control/data signal are all external parameters to the vocoder. But, Robertson fails to specifically disclose the average output rate "determined over a predetermined time period" and being "approximately equal to the target average data rate." However, the examiner contends that the concept of determining an average rate based on a predetermined time period was well known, as taught by Bender.

In the same field of endeavor, Bender discloses an inter-system soft handoff, for operating a cellular telephone system (abstract). Bender further discloses that the traffic level is determined based on link load messages received periodically by the admission control

subsystem that are generated by an interface port coupled to an interconnect between the first

cellular telephone system and the second cellular telephone system (column 3, lines 30-34).

Furthermore, Bender teaches that to allow admission control subsystem 44 (Fig. 2) to properly

monitor the traffic transmitted through BCN (base station communication network) port 32f,

BCN port 32f transmits link load messages to admission control subsystem 44, and the link load

messages are transmitted periodically at a period $T_{SampleLoad}$ and indicate the average frame

reception rate R_{ave} of BCN port, wherein R_{ave} is the total number of good frames received by

BCN port 32f from BSC 24B during the previous period $T_{SampleLoad}$ divided by the duration of the

period $T_{SampleLoad}$ (column 5, lines 52-63).

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Robertson by specifically providing a mechanism of determining

an average rate based on a predetermined time period, as taught by Bender, for the purpose of

improving operating a cellular telephone system (Bender: column 3, line 16).

Regarding **claim 2**, Robertson and Bender disclose everything claimed, as applied above

(see claim 1). But, Robertson fails to specifically disclose that "the plurality of output rates

include a full rate, a half rate, a quarter rate, and a eighth rate." However, the examiner contends

that the concept of providing a plurality of output rates including a full rate, a half rate, a quarter

rate, and a eighth rate was well known, as taught by Bender.

Bender further discloses that the use of rate sets facilitates the generation of voice data at

variable rates in response to the changes in voice activity that occur as a natural part of speech

and shows rate set in Table 1, including full rate, half rate, fourth rate and eighth rate (column 7,

lines 11-28).

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Robertson by specifically providing a variable rates including a

full rate, a half rate, a quarter rate, and a eighth rate, as taught by Bender, for the purpose of

increasing flexibility for the system.

Regarding **claim 4**, Robertson and Bender disclose everything claimed, as applied above

(see claim 1). Robertson further discloses that each customer pays for a specified rate of service

(column 1, lines 51-52), including the highest quality of service level (column 1, line 52),

intermediate quality of service level (column 1, line 57) and the lowest quality of service level

(column 2, line 4), which corresponds to the claimed "the plurality of service classes comprise a

premium class, a standard class and an economic classes."

Regarding **claim 5**, Robertson and Bender disclose everything claimed, as applied above

(see claim 4). Robertson further discloses that in the highest quality of service the cellular

connection will always occur at the highest possible quality rate, and the system dynamically

assigns each of the intermediate customers' vocoders with the highest possible bit rate based on

the current state of the cellular system (column 1, lines 58-61). Furthermore, Robertson cites

that "when the amount of traffic becomes too high, the system will need to reduce the amount of

information. Therefore it sends the rate command signal 110 to each intermediate quality of

service user who is currently on the system, telling that user handset to reduce its bit rate"

(column 1, lines 63-67) and "the lowest quality of service level is always in the reduced bit rate

mode" (column 2, lines 4-5). This corresponds to the claimed "the network has a plurality of

users, each user of the plurality of users having a desired service class from the plurality of

service classes, and wherein if the network cannot accommodate a service demand by one of the

plurality of users at the desired service class of the one user, the target average data rates

associated with the standard class and the economy class are reduced to accommodate the service

demand"

Regarding **claim 6**, Robertson and Bender disclose everything claimed, as applied above

(see claim 4). Robertson further discloses that in the highest quality of service the cellular

connection will always occur at the highest possible quality rate, and the system dynamically

assigns each of the intermediate customers' vocoders with the highest possible bit rate based on

the current state of the cellular system (column 1, lines 58-61). Moreover, Robertson discloses

scheme contemplates a one time increase option (column 2, lines 12-20), which suggest that

when there is available capacity the system is capable of increasing service level for all users.

This corresponds to the claimed "the network has a plurality of users, each user of the plurality

of users having a desired service class from the plurality of service classes, and wherein if the

network can accommodate a service demand by one of the plurality of users at the desired

service class of the one user, the target average, data rates associated with the premium class, the

standard class and the economy class are increased."

3.   Claims 3, 8-11 and 28-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Robertson in view of Bender, and further in view of Tiedemann et al. (USPN 5,914,950)

hereinafter referenced as Tiedemann.

Regarding **claim 3**, Robertson and Bender disclose everything claimed, as applied above

(see claim 1). Robertson further discloses that each customer pays for a specified rate of service

(column 1, lines 51-52), and a multi rate vocoder 104 (Fig. 1) receives the rate command and

selects a quality of service accordingly (column 1, lines 48-50), which corresponds to the

claimed "the at least one external parameter is indicative of one of a plurality of service classes."

But, Robertson and Bender fail to expressly disclose "the at least one network parameter is

indicative of an available network capacity". However, the examiner contends that the concept

of providing available network capacity was well known, as taught by Tiedemann.

In the same field of endeavor, Tiedemann discloses a method and apparatus for reverse

link rate scheduling, which improves utilization of the reverse link and decreases the

transmission delay in data communication in a CDMA system (column 4, lines 41-43).

Tiedemann further disclose that the maximum scheduled transmission rate is sent to the remote

station and the remote station partitions the data into data frames and transmits the data frames

over the reverse link at or below the maximum scheduled transmission rate (column 5, lines 2-

6). Moreover, Tiedemann discloses that the available capacity is allocated to the highest

priority user first and the lowest priority user last (column 5, lines 26-27).

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Robertson and Bender by specifically providing available network

capacity as network parameter, as taught by Tiedemann, for the purpose of improving utilization

of the system recourse and decreasing transmission delay in data communication (Tiedemann:

abstract).

Regarding **claim 8**, Robertson and Bender disclose everything claimed, as applied above

(see claim 1). But, Robertson and Bender fail to expressly disclose that "the at least one network

parameter is indicative of an available network capacity, and the at least one external parameter

is indicative of the subject matter of the signals." However, the examiner contends that the

concept of providing information of available network capacity and subject matter of signals was well known, as taught by Tiedemann.

Tiedemann further disclose that the maximum scheduled transmission rate is sent to the remote station and the remote station partitions the data into data frames and transmits the data frames over the reverse link at or below the maximum scheduled transmission rate (column 5, lines 2-6). Furthermore, Tiedemann discloses that the available capacity (herein equivalent to available network capacity) is allocated to the highest priority user first and the lowest priority user last (column 5, lines 26-27). In addition, Tiedemann discloses that the reverse link transmissions can be classified into two classes (herein equivalent to categories), unscheduled task with intolerance of additional delay such as voice communication and scheduled task with tolerance additional delay such as data communication (column 8, lines 32-42).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Robertson and Bender by specifically providing available capacity information for network parameter and subject matter class for external parameter, as taught by Tiedemann, for the purpose of improving utilization of the system recourse.

Regarding **claim 9**, Robertson, Bender and Tiedemann disclose everything claimed, as applied above (see claim 8). The rejection for claim 8, as state above, satisfies the claimed "the subject matter can be one of voice category, data category, music category, and image video category".

Regarding **claim 10**, Robertson, Bender and Tiedemann disclose everything claimed, as applied above (see claim 9). Robertson further discloses that in the highest quality of service the cellular connection will always occur at the highest possible quality rate, and the system

dynamically assigns each of the intermediate customers' vocoders with the highest possible bit rate based on the current state of the cellular system (column 1, lines 58-61). Furthermore, Robertson cites that "when the amount of traffic becomes too high, the system will need to reduce the amount of information. Therefore it sends the rate command signal 110 to each intermediate quality of service user who is currently on the system, telling that user handset to reduce its bit rate" (column 1, lines 63-67) and "the lowest quality of service level is always in the reduced bit rate mode" (column 2, lines 4-5). This corresponds to the claimed "wherein the network has a plurality of users, if the network cannot accommodate a service demand by one of the plurality of users at the target average date rate, the target average data rates associated with one or mote categories of the subject matter are reduced to accommodate the service demand."

Regarding **claim 11**, Robertson, Bender and Tiedemann disclose everything claimed, as applied above (see claim 9). Robertson further discloses that in the highest quality of service the cellular connection will always occur at the highest possible quality rate, and the system dynamically assigns each of the intermediate customers' vocoders with the highest possible bit rate based on the current state of the cellular system (column 1, lines 58-61). Moreover, Robertson discloses scheme contemplates a one time increase option (column 2, lines 12-20), which suggest that when there is available capacity the system is capable of increasing service level for all users. This corresponds to the claimed "wherein the network has a plurality of users, if the network can accommodate a service demand by one of the plurality of users at. the target average data rate, the target average data rates associated with one or more categories of the subject matter are increased."

Regarding **claims 28-37**, they disclose a method for use by a flexible variable rate

vocoder, which corresponds to the apparatus claims 1-6 and 8-11 respectively. The method is

obvious in that it simply provides functionality for the structure found in claims 1-6 and 8-11.

4.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Robertson in view

of Bender, and further in view of well known prior art (MPEP 2144.03).

Regarding **claim 7**, Robertson and Bender disclose everything claimed, as applied above

(see claim 2). But, Robertson and Bender fail to expressly disclose that "the rate implementation

module comprises a switch, a full rate module, a half rate module, a quarter rate module, an

eighth rate module, and a multiplexor, and wherein the switch selects between. the nodules for

coding each of the outgoing frames, and the multiplexor receives the outgoing frames from each

of the modules and serially outputs the outgoing frames on a single line." However, the

examiner takes official notice of the fact that it was well known in the art to provide a switch for

selecting multiple rates and a multiplexor for receiving frames and output them serially.

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Robertson and Bender by specifically providing a switch for

selecting rates and a multiplexor for receiving frames and output them serially, for the purpose of

fully taking advantage of variable rates and increasing system efficiency. In addition, in fact,

Bender has disclosed a four variable rate system with voice communication, so that the system

must inherently includes some switching means for selecting rates and multiplexing means for

output voice data (frames) serially.

Conclusion

5.   Any response to this office action should be mailed to:
        Commissioner of Patents and Trademarks, Washington D.C. 20231
    or faxed to:
        (703)-872-9314
    Hand-delivered responses should be brought to:
        Crystal Park II, 2121 Crystal Drive, Arlington. VA. Sixth Floor (Receptionist).

    Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qi Han whose telephone numbers is (703) 305-5631. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. and Friday from 8:00 a.m. to 12:00 a.m.

    If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold, can be reached on (703) 305-4379.

    Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

QH/qh
February 24, 2003

Marsha O Banks-Harold
MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600